DESIRE

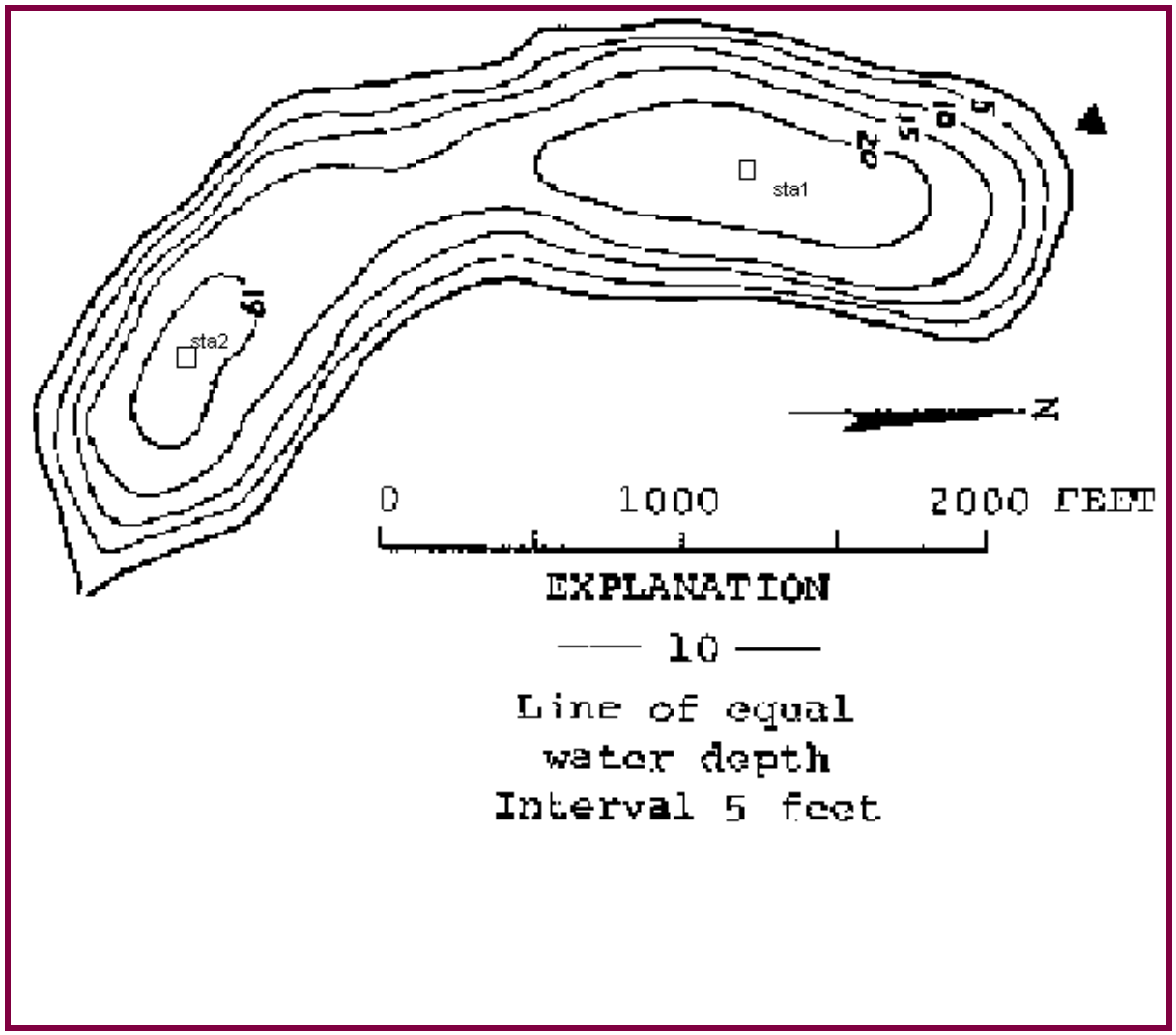
KING County

Lake ID: *DESKI1*

Ecoregion: 2

Lake Desire is located approximately five miles southeast of Renton. It is less than a mile long. It is fed only intermittently, and has no outflow.

Area (acres)	*Maximum Depth (ft)*	*Mean Depth (ft)*	*Drainage (sq mi)*	
71	21	13	1	
Volume (ac-ft)	***Shoreline (miles)***	***Altitude (ft abv msl)***	***Latitude***	***Longitude***
933	1.65	500	47 26 14.	122 06 09.



Station Information

DESKI1

Primary Station	Station # 1	latitude: 47 26 36.0	longitude: 122 06 21.7
	Description:	Deep site. In the middle of the lake, approximately 1000 feet south of northern shore.	
Secondary Station	Station # 2	latitude: 47 26 20.1	longitude: 122 06 13.8
	Description:	In south end of lake, approximately 750 feet northwest of southeast tip.	

Trophic State Assessment for 1999

DESIRE

Analyst: Sarah O'Neal

TSI_Secchi: [a]	50
TSI_Phos:	50
TSI_Chl:	58
Narrative TSI: [b]	ME

Lake Desire is a little, shallow lake located in a small watershed in a relatively urban setting. Total phosphorus was consistently higher in the hypolimnion than in the epilimnion, and dissolved oxygen concentrations quickly dropped to zero at depths of three to four meters. This indicates nutrient loading in which phosphorus is released from sediments into the water column. Low dissolved oxygen also leads to hydrogen sulfide near the bottom of the lake, causing an offensive, "rotten-egg" smell noted in water samples in August. Secchi readings decreased steadily throughout the summer. Accordingly, chlorophyll-a concentrations also increased throughout the summer. Algae blooms probably caused the decrease in water clarity. Residences constitute the majority of the watershed. Dense residential areas are the likely cause of a number of Canada geese inhabiting the lake. Geese use manicured lawns as habitat. Best management practices observed in the watershed included sediment fences at construction sites, and buffer zones around wetlands and streams. The lake shoreline was surprisingly natural, considering the urban setting of the lake. It was moderately vegetated, however, purple loosestrife (Lythrum salicaria), a noxious wetland plant, grew densely around the lake. Lawns, docks, boats, and buildings made up the majority of human influence on the lake.

Only one visitor to the lake completed a questionnaire. The respondent suggested that poor water quality for swimming, the density of plants, and Canada geese detracted from enjoyment of the lake. The respondent indicated fishing as a primary activity, stating that fishing is particularly good in the lake. According to a 1999 WDFW survey, officials historically managed Lake Desire as a trout fishery, and rehabilitated it with rotenone in 1968 and 1972 to remove introduced warmwater sport fish. After that, however, the lake was managed as a mixed species fishery for annually stocked rainbow and cutthroat trout as well as warmwater species. In 1999, largemouth bass and pumpkinseed dominated the fishery in the lake. Other warmwater fish in Lake Desire included bluegill, yellow perch, and brown bullhead. Rainbow trout were the most abundant salmonid in the lake, and cutthroat trout were also present. WDFW found three coho salmon in the lake in 1999. Inadequate

hypolimnetic dissolved oxygen concentrations provided little habitat in the lake for coldwater species, though surface water temperatures were not excessive. Average size of zooplankton decreased noticeably during the summer. This suggests a possible ineffective amount of piscivores to suppress planktivore density.

The meso-eutrophic state of the lake apparently supported primary uses of the lake, especially fishing. Consequently, we recommend a total phosphorus criterion for the lake of 29.8 ug/L (mean 24.3 ug/L plus standard deviation of 5.5 ug/L).

Mean Secchi = 2.0; Mean TP = 24.3 ug/L; Mean Chl = 16.9 ug/L

[a] TSI Qualifiers: B or W-Secchi Disk hit bottow or entered weeds; J-Estimate; N-Fewer than the required number of samples

[b] E=eutrophic, ME=mesoeutrophic, M=mesotrophic, OM=oligomesotrophic, O=oligotrophic

Chemistry Data

DESIRE

Date	Time	Strata	Tot P (ug/L	Tot N (mg/L)	TN:TP	Chloro-phyll (ug/L)	Fecal Col. Bacteria (#/100mL)	Hardness (mg/L)	Calcium (ug/L)	Turbidity (NTU)
Station 0										
6/21/1999		L					6			
		L					22 J			
Station 1										
6/21/1999		E	21.6	.372	17	7.9		23	5470	1.3
		H	55.9	.374	7					
7/12/1999		E	21.2	.468	22	10.7				1.5
		H	240	.793	3					
8/13/1999		E	27.5	.475	17	22.5				1.4 J
		H	65.9	.497	8					
9/16/1999		E	26.7	.601	23	25.7				
		H	73.7	.384	5					
Station 2										
6/21/1999		E	22.3	.419	19	10.9				
7/12/1999		E	21.4	.489	23	9.91				
8/13/1999		E	28.2	.496	18	17.6				
9/16/1999		E	31.3	.716	23	37.6				

Strata: L=lake surface, E=epilimnion, H=hypolimnion; Qualifier: J=Estimate, U=Less than, G=Greater than.

Watershed Survey

DESIRE

Survey Date: 9/16/1999

Land Uses (1 = Primary, 2 = Secondary, etc.)

[ ] **Agriculture(commercial, not hobby)**

[1] **Residential**

	Commercial, Industrial	2	**Park, forest or natural**
	Major transportation		

Impervious surfaces (Roads and parking area): Partially Curbed

Observations (check mark denotes presence)

BMP's ☑

Silt screens on construction sites observed

Odors ☐

Cattle ☐ **Ducks** ☑ **Geese** ☑

In the lake

Fertilizers and weed killers appear to be used in residential or agriculture area ☐

Buffer zones around streams and wetlands ☑

Irrigation ☑

Near boat launch

Survey Id: 50

Habitat Survey Summary Report

DESIRE

Data are averages of ***10*** **Stations Surveyed** **Date of Visit:** 9/7/1999

Vegetation Type (Avg. only of sites w/ vegetation present; 1=coniferous, 3=deciduous)

Canopy Layer Avg:	1.8	**Number of stations with canopy:**	10
Understory Avg:	2.3	**Number of stations with understory:**	10

Percent Areal Coverage (0 = absent, 1 = <10%, 2 = 10-40%, 3 = 40-75%, 4 = >75%)

Canopy Layer:	**trees > 0.3 m DBH**	2.0
	trees< 0.3 m DBH	1.4
Understory:	**woody shrubs saplings**	2.0
	tall herbs, forbs grasses	1.1
Ground Cover:	**woody shrubs seedlings**	1.4
	herbs, forbs, grasses	3.4
	standing water or inundated veg	0.1
	barren or buildings	1.3
Substrate Type (within shoreline plot):	**bedrock**	0.0
	boulders	0.0
	cobble/gravel	0.8

	loose sand	0.0
	other fine soil/sediment	0.4
	vegetated	3.5
	other	0.5
Bank Features:	**angle (O:<30; 1: 30-75; 2:nr vertical)**	0.3
	vertical dist (M from wtrln to high wt):	0.0
	horiz. dist. (M from wtrln to high wt):	0.0

Human Influence (0 = absent, 1 = adjacent to or behind plot, 2 = present within plot)

buildings	1.2
commercial	0.0
park facilities	0.1
docks/boats	1.4
walls, dikes, or revetments	0.2
litter, trash dump, or landfill	0.0
roads or railroad	0.0
row crops	0.0
pasture or hayfield	0.0
orchard	0.0
lawn	1.6
other	0.0

Physical Habitat Characteristics

station depth (m; at 10 m from shore)	1.4

Bottom Substrate (0 = absent, 1 = <10%, 2 = 10-40%, 3 = 40-75%, 4 = >75%)

bedrock	0.0
boulders	0.0
cobble	0.0
gravel	0.0
sand	0.0
silt	4.0
woody debris	0.5

Macrophyte Areal Coverage (0 = absent, 1 = <10%, 2 = 10-40%, 3 = 40-75%, 4 = >75%)

submergent	1.7
emergent	0.8
floating	2.0
total weed cover	2.5
Do macrophytes extend lakeward (-1 = yes, 0 = no)	-0.9

Fish Cover (0 = absent, 1 = Present but sparse, 2 = moderate to heavy)

aquatic weeds	1.9
snags	0.0

brush or woody debris	0.5
inundated live trees	0.0
overhanging vegetation	1.0
rock ledges or sharp dropoffs	0.2
boulders	0.0
human structures	0.8

Questionnaire

DESIRE

Results compiled from 1 **Surveys.** **Average time (years) respondents spent on lake:** 3.00

Did the following add (+1), detract (-1), or have no effect (0) on your enjoyment of the lake today?

Types of WaterCraft:		View:		Distance to Lake:	1.0
Public Access:		Swim Beach:		Canada Geese:	-1.0
Water Clarity:		Water Qual. for Swim:	-1.0		
Fishing Quality:	1.0	Aquatic Plants:	-1.0		

On a scale of 1 (poor) to 5 (excellent), how would you rate water quality today? **1.0**

Which would you rather have, 1 or 2?

1) Better fishing and more natural habitat, or 2) clearer water?	2.0
1) Better fishing and more natural habitat, or 2) fewer aquatic plants?	2.0
1) Clearer water, or 2) fewer aquatic plants?	1.0

How important is each of the following characteristics to you (1 = very undesirable, 5= very desirable):

Restricted Watercraft:	4.0	Good Warmwtr Fishing:	5.0	Natural Scenery:	5.0
Plant Growth:	1.0	Good Swimming:	4.0	Public Beach:	5.0
Natural Shoreline:	4.0	Less Algae:	5.0	Canada Geese:	
No Odors:	5.0	Public Access:	5.0		
Good Coldwtr Fishing:	5.0	Clear Water:	5.0		

Tabulated Results

Survey ID	Date	Residency	Rent or Own	Primary Activity*	Water Clarity: Purchase Factor?	Water Clarity: Has it Changed?	Water Clarity: When?
164	6/21/1999	Visitor		2	☐	Worse	1996
	Less debris						

* 1=canoe/kayak, 2=fish, 3=pers. wtrcrft, 4=mtrboat, 5=sail, 6=swim/wade, 7=watch wldlf, 8=ski, 9=windsurf, 10=relaxing

Zooplankton Report

DESKI1

Date 6/21/1999 Station: 1 Length of tow not labelled.

Sample ID 63

Number of organisms measured: #Delet

Group	Percent	Group	Percent
Cladocera	#Deleted	Small < 1mm	#Deleted
Copepod	#Deleted	Large >= 1mm	#Deleted
Other	#Deleted	Ratio of large to Smal	#Num!
		Average size (mm):	0.73

Date 6/21/1999 Station: 2 Sample ID 79

Lenth of tow not labelled. Dense algae, may have missed some immature copepods.

Number of organisms measured: #Delet

Group	Percent	Group	Percent
Cladocera	#Deleted	Small < 1mm	#Deleted
Copepod	#Deleted	Large >= 1mm	#Deleted
Other	#Deleted	Ratio of large to Smal	#Num!
		Average size (mm):	1.09

Date 8/13/1999 Station: 1 Sample ID 52

Length of tow not labelled.

Number of organisms measured: #Delet

Group	Percent	Group	Percent
Cladocera	#Deleted	Small < 1mm	#Deleted
Copepod	#Deleted	Large >= 1mm	#Deleted
Other	#Deleted	Ratio of large to Smal	#Num!
		Average size (mm):	0.53

Date 8/13/1999 Station: 2 Sample ID 56

Lenth of tow not labelled. Many worms.

Number of organisms measured: #Delet

Group	Percent	Group	Percent
Cladocera	#Deleted	Small < 1mm	#Deleted
Copepod	#Deleted	Large >= 1mm	#Deleted
Other	#Deleted	Ratio of large to Smal	#Num!
		Average size (mm):	0.42

Aquatic Plant Data

DESIRE

Sampler: Parsons, O'Neal

Survey Date: 7/8/1999

Max depth of growth (M):

Comments Sunny, light breeze. Looking for Typha angustifolia. Very little submersed plant growth, only seen at boat launch area. Patches of cattails around lake--collected one that could be a hybrid. King County may have provided money for plant control

SPECIES LIST

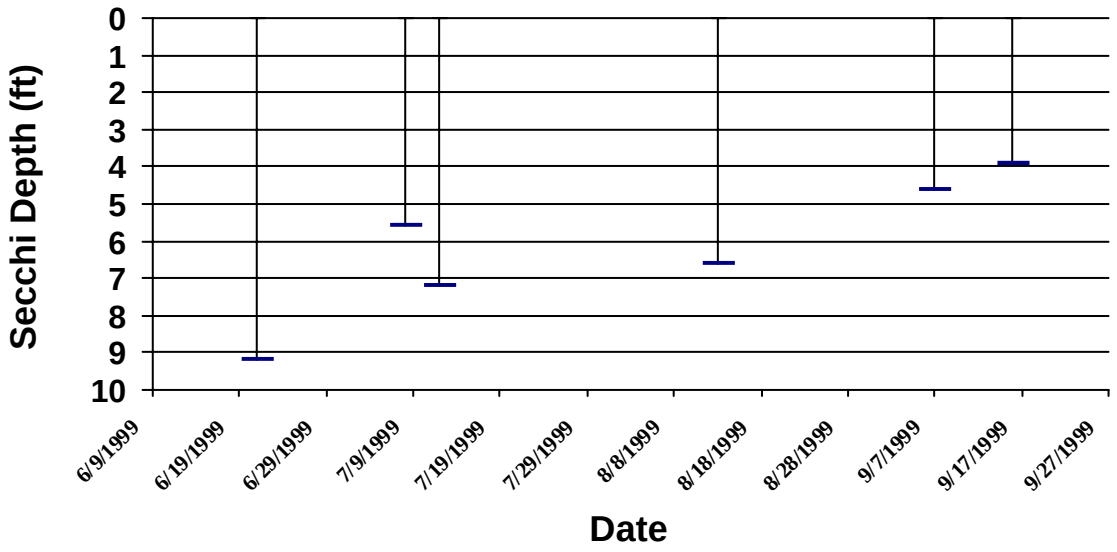
Scientific Name	Common Name	Dist [a]	Comments
Brasenia schreberi	watershield	2	
Brasenia schreberi	watershield	2	
Callitriche sp.	water-starwort	1	near shore, dent in leaf tip
Callitriche sp.	water-starwort	1	near shore, dent in leaf tip

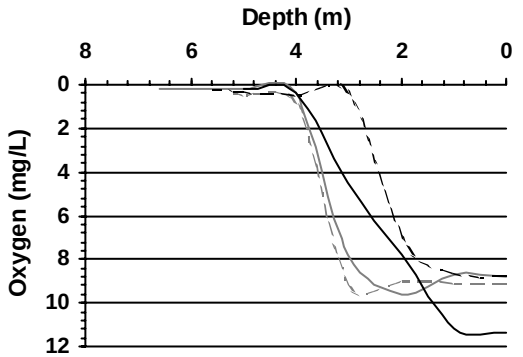
Ceratophyllum demersum	Coontail; hornwort	1	around lauch area
Ceratophyllum demersum	Coontail; hornwort	1	around lauch area
Elodea canadensis	common elodea	1	around public launch
Elodea canadensis	common elodea	1	around public launch
Iris pseudacorus	yellow flag	3	
Iris pseudacorus	yellow flag	3	
Lythrum salicaria	purple loosestrife	3	along much of shore
Lythrum salicaria	purple loosestrife	3	along much of shore
Nuphar polysepala	spatter-dock, yellow water-lily	2	some very robust plants
Nuphar polysepala	spatter-dock, yellow water-lily	2	some very robust plants
Nymphaea odorata	fragrant waterlily	3	
Nymphaea odorata	fragrant waterlily	3	
Scirpus sp.	bulrush	1	
Scirpus sp.	bulrush	1	
Typha latifolia	common cat-tail	2	some with gap between male and female flower, but not T. angustifolia
Typha latifolia	common cat-tail	2	some with gap between male and female flower, but not T. angustifolia
Brasenia schreberi	watershield	2	
Brasenia schreberi	watershield	2	
Ceratophyllum demersum	Coontail; hornwort	2	
Ceratophyllum demersum	Coontail; hornwort	2	
Elodea canadensis	common elodea	2	
Elodea canadensis	common elodea	2	
Lythrum salicaria	purple loosestrife	3	much in patches along shore
Lythrum salicaria	purple loosestrife	3	much in patches along shore
Myriophyllum spicatum	Eurasian water-milfoil	1	only a few plants found
Myriophyllum spicatum	Eurasian water-milfoil	1	only a few plants found
Nitella sp.	stonewort	2	in deeper water
Nitella sp.	stonewort	2	in deeper water
Nuphar polysepala	spatter-dock, yellow water-lily	2	
Nuphar polysepala	spatter-dock, yellow water-lily	2	
Nymphaea odorata	fragrant waterlily	3	
Nymphaea odorata	fragrant waterlily	3	
Potamogeton epihydrus	ribbonleaf pondweed	2	
Potamogeton epihydrus	ribbonleaf pondweed	2	
Potentilla palustris	purple (marsh) cinquefoil	1	
Potentilla palustris	purple (marsh) cinquefoil	1	
Potamogeton sp (thin leaved)	thin leaved pondweed	2	
Potamogeton sp (thin leaved)	thin leaved pondweed	2	
Potamogeton zosteriformis	eel-grass pondweed	2	
Potamogeton zosteriformis	eel-grass pondweed	2	
Typha latifolia	common cat-tail	2	
Typha latifolia	common cat-tail	2	

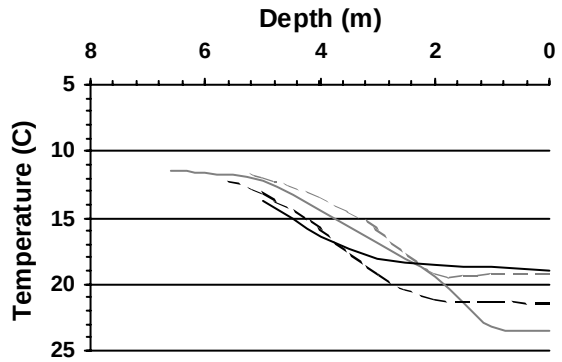
[a] 0 - value not recorded (plant may not be submersed)
1 - few plants in only 1 or a few locations
2 - few plants, but with a wide patchy distribution
3 - plants in large patches, codominant with other plants
4 - plants in nearly monospecific patches, dominant
5 - thick growth covering substrate to exclusion of other species

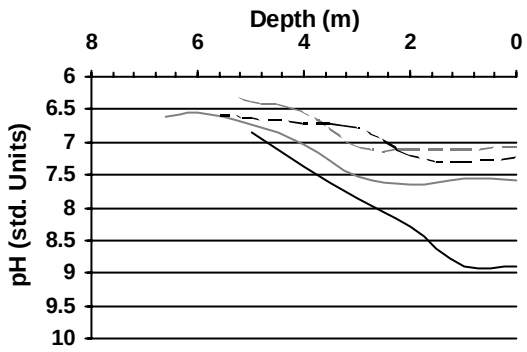
Secchi Depth and Profile Graphics

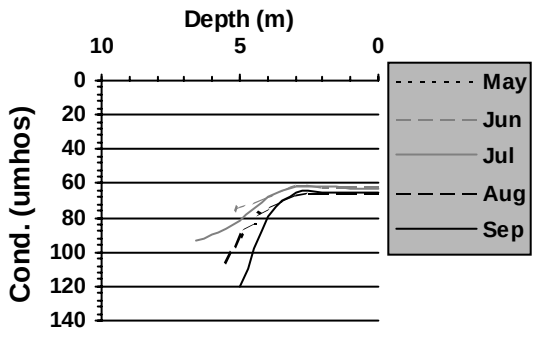
Station: 1 DESKI1











Secchi Data and Field Observations

DESIRE

Date	Time	Temp-erature (F)	Secchi (ft)	Color (1-greens, 11-browns	Bright-ness (pct)	Wind (1-none, 5-gusty)	Rainfall (0-none, 5-heavy)	Aesthetics (1-bad, 5-good)	Swimming (1-poor, 5-good)	Geese (#)	Waterfowl (besides geese #)	Boats-Fishing (#)	Boats-Skiing (#)
Station 1													
6/21/1999			9.2	7	0	3	1	5	2	38	3	0	0
	Sampler: SMITH			Remarks: None									
7/8/1999			5.6										
	Sampler: Parsons			Remarks:									
7/12/1999			7.22	8	0	2	1	5	5	30	1	0	0
	Sampler: SMITH			Remarks: None									
8/13/1999			6.6	7	100	1	1	5	4	0	0	0	0
	Sampler: SMITH			Remarks: Strong H2S at 5 meters.									
9/7/1999			4.6										
	Sampler: Parsons			Remarks:									
9/16/1999			3.94	3	100	1	1	5	2	0	3	1	0
	Sampler: SMITH			Remarks: Heavy algal bloom									